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Doug Folk | Clark Hill, PLC

WHO NEEDS A LICENSE?
Professional licensure has come under fire in some states, and ACEC and Member Organizations have rallied to its defense.
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Technology is changing civil infrastructure. It’s providing real-world context and real-time analytics across project workflows, and supporting the digital transfer of design to the field.
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Engineering Inc. promotes the advocacy and business interests of ACEC by offering news, legislative analysis and business practice information to member firms, clients, opinion leaders and policy makers.

The articles and editorials appearing in this magazine do not represent an official ACEC position or policy unless specifically identified as doing so.
ACEC/PAC – Not Just About the Money

ACEC/PAC raised a record $1,010,433 in 2016, propelled by 41 State Organizations which reached—and in many cases exceeded—their fundraising goals.

As the largest PAC in the design industry and in the top 3 percent of all federal PACs, this political program of ours is important because it enhances the Council’s strength and prospects for advocacy success. It signals to Congressional members that we have significant resources to help them win elections; it facilitates access to them on important issues that affect the business environment for Member Firms.

ACEC/PAC helped us to achieve major legislative victories in 2016, including multi-billion dollar transportation and water programs, legislation to promote contracting out and expand energy markets, and key tax code changes, among others. Continued strong support for ACEC/PAC in 2017 is necessary as we seek to abolish the so-called “blacklisting” rule, advance significant new investments in infrastructure, and make reforms to the tax code.

This issue of Engineering Inc. takes a close look at the way State Member Organizations and Firms generated ACEC/PAC’s record fundraising year, including an “Honor Roll” of all PAC contributors (See page 11). Our cover feature explores how the Council is combating a nationwide effort to eliminate state professional licensure for engineers (See page 26). Also included is an analysis of the ACEC-commissioned study by New York University confirming the financial and other benefits to government clients of contracting out. (See page 32)

Don’t miss the upcoming 2017 ACEC Annual Convention—April 23-26, at the Marriott Wardman Park Hotel in Washington, D.C., which will feature nationally noted speakers; expert panels on industry perspectives; a Congressional panel on the legislative landscape, and the 50th Anniversary Engineering Excellence Awards Gala hosted by Saturday Night Live alum Kevin Nealon.

We look forward to seeing you there.

Peter M. Strub
ACEC Chairman

David A. Raymond
ACEC President & CEO
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Battery storage is not yet ready for prime time. It is just too expensive. Although it has cost-effective applications in a few niches, such as island grids or locations where technical constraints require a nonwired solution, it doesn’t pencil out for large-scale energy storage.

That dynamic, however, looks certain to change. Given the trend toward renewable energy in U.S. power generation and the rapidly improving value proposition of battery storage technology, the market is poised to grow.

Whether that growth comes sooner or later could depend on an upcoming ruling by the Federal Energy Regulatory Commission (FERC). In November 2016, FERC issued a draft Notice of Proposed Rulemaking (NOPR) looking “to remove barriers to the participation of electric storage resources and distributed energy resource aggregations in the capacity, energy and ancillary service markets.” A final ruling is expected within a year.

With the exception of the frequency regulation market in PJM—the regional transmission operator (RTO), which oversees the mid-Atlantic states—and a few specialized applications, the majority of battery installations to date are attributed to mandates and incentive programs, according to Doug Butcher, central region project director, renewable energy, at Black & Veatch. “For significant growth to occur, widespread market reform is necessary,” Butcher says. “There needs to be some form of stimulus to push battery storage forward. If that happens, I think we’ll see rapid growth. If not, we will have to wait a few years for the economics of battery storage to work out.”

CURRENT MARKET
Energy storage is a relatively small market. According to the University of Michigan Center for Sustainable Systems, the U.S. had 21.6 gigawatts (GW) of rated power in energy storage compared with 1,068 GW of total in service installed generation capacity.

Approximately 95 percent of that storage is pumped hydro, in which water is pumped from a low reservoir to a high reservoir and then released to run through a hydroelectric turbine when electricity is needed. Though it’s the most affordable form of storage, pumped hydro has two significant market limitations. It is geographically constrained—and it relies upon having large quantities of water available. This makes it impractical for bulk energy storage in some geographic regions such as deserts in the Southwest.

However, not only can batteries be deployed anywhere, but they are also very flexible. While their most effective use is demand response—regulating transmission systems by instantaneously raising or lowering output to follow moment-by-moment imbalances in generation and load—they can also be used to integrate utility-scale solar and wind resources into the transmission system, replace gas turbine peaker plants and provide stability and peaking capacity at the distribution substation and distribution feeder level.

“The grid of tomorrow is very different from the grid of just 10 years ago,” says Butcher. “With the increased penetration of renewables and declining system inertia, real-time grid imbalances are a much bigger problem today. Batteries are a great technical solution to that problem because in addition to providing instantaneous capacity when it is needed, they can absorb excess renewable generation rather than curtailing it.”

As a result, batteries—specifically lithium-ion batteries—have come to dominate the market. According to GTM Research, lithium-ion accounted for 96.2 percent of all storage installations in the third quarter of 2016.

Total energy storage deployment in the United States was about 260 megawatts (MW) in 2016, up from 226 MW in 2015. GTM Research forecasts growth to accelerate over the coming five years, projecting more than 2 GW in annual deployments by 2021.

“Battery storage is a great technical answer to a number of grid issues, ranging from instantaneous imbalances and short-term overloads to time of day mismatches between renewable generation and load,” says Butcher. “The only thing that is keeping a ceiling on the market is the fundamental economics of bulk energy storage.”

Even as lithium-ion battery prices have fallen dramatically in the past two years, from around $350 per kilowatt-hour (kWh) to, according to GTM Research, $200-$250 per kWh, they are still far above the $100 per kWh price point that analysts say would make them viable in the market.

The primary driver of that price drop has been rapid growth of the electric car market, and General Motors, which produces the Volt electric car, has said that its batteries will reach $100 per kWh by 2022. Given the remarkable downward trajectory of battery prices in recent months, however, few would be surprised to see that milestone reached long before then.
REGULATORY MANDATES
Absent price competitiveness, the battery storage industry has relied on regulatory actions to build market momentum. Two of the nation’s transmission operators, which coordinate, control and monitor regional electrical power markets, have incorporated storage into their systems.

PJM has included storage in its capacity, energy and ancillary service markets since 2013. Since then, PJM has been the largest U.S. market for energy storage with more than 250 MW of cumulative deployments, according to GTM Research.

In 2013, California mandated that the state’s power industry must procure 1.3 GW of energy storage by 2020. The utilities, which are overseen by the California Independent System Operator (ISO) have already deployed 73.8 MW, making the state the second-largest storage market in the nation.

In the past three years, these two developments have accounted for almost all of the nation’s energy storage deployments.

Battery storage proponents hope these regional successes will be replicated on a national level if FERC embraces storage in its upcoming ruling. About 70 percent of the nation’s electrical grid system is regulated by FERC through its oversight of the RTOs and ISOs. In the rest of the country, vertically integrated utilities manage the grid.

If FERC does embrace storage, that would require each RTO and ISO to establish market rules recognizing the characteristics of energy storage resources and their place in the wholesale market, says Robert Schulte, a partner in Schulte Associates LLC, which performs resource planning and project development work for electric utilities. “It would define distributed energy resource aggregators as a market participant in the organized wholesale markets,” he says.

Schulte says the ruling would provide access to the grid for the growing number of storage batteries that are “behind the meter” on customer’s premises.

“Unlike traditional generation facilities upon which most of the current market rules are based, these distributed resources are relatively small in size, operate differently and have output duration limitations,” he says, “but their capabilities could be useful at the wholesale level if allowed to access it.”

Because it would be too complex and cost prohibitive for owners of these distribution-level devices to try to participate in the market themselves, Schulte says, “The proposed rule would also require the RTOs/ISOs to allow aggregation of such devices, enabling entities to represent groups of devices in the market.”

FUTURE MARKET
Schulte says FERC’s blessing to storage “is a key to the economics of batteries,” but he and other analysts agree that the market will not explode overnight. The regional organizations will need time to incorporate storage into their systems.

“I think you will see measured growth in the sector over the next two to three years,” says Peter Boos, Burns & McDonnell business development manager for the transmission and distribution industry. “After that, with improved battery prices and new regulation, I expect rapid growth.”

Even though most analysts expect lithium-ion batteries to be the dominant storage technology for the foreseeable future, they have a serious drawback.

“The Achilles’ heel of lithium-ion and most other battery chemistries is that they degrade rapidly with cycle age,” says Frank Jakob, a battery storage subject matter specialist at Black & Veatch. “A battery can lose 20 percent or more of its capacity in 3,000 cycles, so you might have to replace it in five to 10 years if the cycle rate is one to two cycles per day.”

Engineers are working to solve lithium-ion’s degradation problem, but the door is open for other technologies to gain a foothold in the market.

One promising technology is flow batteries, which contain two electrolyte solutions in two separate tanks, circulated through two independent loops. When connected to a load, the migration of electrons from the negative to the positive electrolyte solution creates a current.

Flow batteries don’t have any cycling degradation and can be easily scaled up, but they are far more expensive than lithium-ion, and they lack the market backing to drive down the price.

Other potential systems include hydrogen storage, superconducting magnetic energy and synthetic natural gas storage.

“With the amount of investment dollars that are being spent in this space, it’s only a matter of time before someone comes up with something better than lithium-ion,” says Boos.
Infrastructure investment continues to garner significant attention from the Trump administration and in Congress, although timing and specific details of a proposal are still under development.

ACEC National and 49 ACEC Member Organizations signed a broad coalition letter with nearly 400 other stakeholder organizations to President Trump expressing support for, “a balanced infrastructure investment plan that will lift our nation’s economy and improve our transportation network.” The letter called for funding to improve all types of infrastructure throughout the country, including transportation, water, ports and energy projects, both through federal programs as well as incentives for private investment. It also highlighted the need for additional revenue to ensure the long-term solvency of the Highway Trust Fund, which will be unveiled by the administration in the coming months.

Speaker of the House Paul Ryan indicated that the funding parameters for an infrastructure investment package would be worked out in budget negotiations later in the spring.

Prior to his inauguration, President Trump also announced the creation of an “infrastructure council” headed by two New York real estate developers, Richard LeFrak and Steven Roth. The composition and responsibilities of the group are not well known, but they are expected to be involved in overseeing selection and development of large scale, high profile infrastructure projects that could be financed under the new initiative.

At a kick-off hearing for the House Transportation and Infrastructure Committee, Chairman Bill Shuster, R-Pa., highlighted infrastructure investment as a key priority for 2017 and an area ripe for bipartisan congressional action. “President Trump made a promise to the American people that he would reassert America’s greatness. From my perspective, that means ensuring that America is competitive in the crowded global marketplace of today and tomorrow,” said Shuster. “It means reimagining and building a 21st century infrastructure—leveraging resources from all levels of government and the private sector.”

ACEC and a business coalition led by the U.S. Chamber of Commerce urged Senate leaders to take up the Regulatory Accountability Act of 2017 (H.R. 5).

H.R. 5 would modernize the federal regulation process. It would increase transparency and input by affected citizens, and it would also require agencies to choose the least costly option unless a more expensive approach is needed in order to protect the public. The House of Representatives voted 238-183 to approve The Regulatory Accountability Act, and the bill awaits action in the Senate.
Congress Takes Steps to Repeal Health Care Law

In January, the House and Senate took the first step toward dismantling the Affordable Care Act (ACA) when Congress passed a budget resolution that provides a legislative path to repeal. Congressional committees are now writing legislation that would undo the law.

Although the budget reconciliation process will make repealing certain pieces of the law—such as tax provisions—easier to pass, other parts will need 60 votes in the Senate to move forward. These include insurance reforms and the health insurance exchanges.

At the same time, Congress is focusing on replacing ACA with a plan that centers on access to health insurance and lowering costs. Various ideas are under consideration, including expanded high-risk pools for people with pre-existing conditions, facilitating association health plans (AHPs) like the ACEC Life-Health Trust, allowing insurance to be purchased across state lines and reforming medical liability.

ACEC is working with Congress to support AHPs and to ensure that the ACA replacement provides affordable health insurance options for engineering firms and their employees.

ACEC Supports Estate Tax Repeal


The Council has long supported eliminating the estate tax in order to preserve family-owned engineering firms and other businesses. Repeal of the estate tax is one of the provisions in the House Republican tax reform blueprint that was released last year.

Congress is expected to vote on tax reform this year, and ACEC will work with the House Ways and Means Committee to include estate tax repeal in the legislation.

ACEC and Coalition Allies Seek to Limit Project Labor Agreements

ACEC and other construction industry allies are urging President Trump to eliminate current mandates on the use of Project Labor Agreements (PLAs) for federal projects through federal contracting.

Early in his first term, President Obama issued an executive order requiring federal projects in excess of $25 million to use PLAs, which create a collective bargaining agreement with one or more labor organization that requires companies to recognize unions, use the union hiring hall to obtain workers and pay into multi-employer pension plans that nonunion employees are unlikely to access. This forces employers to pay “double benefits” into existing plans and union plans, and it also places firms opposed to these costly provisions at a significant competitive disadvantage. There are studies showing that PLA mandates increase the cost of construction from 12 to 18 percent when compared to non-PLA projects.

While ACEC was able to secure clarification in the final rule to exclude the engineering industry to ensure the independence of design professionals, the Council has continued to support efforts to eliminate PLAs to prevent potential conflicts with the various roles engineering firms play in project oversight, safety and performance.

The industry groups are calling on the new administration to rescind the executive order and prevent federal agencies from mandating PLAs as a condition for winning federal contracts.

For More News

For weekly legislative news, visit ACEC’s Last Word online at www.acec.org.
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MARCH / APRIL 2017  ENGINEERING INC.

There's something magic about the phrase “million-dollar PAC” in Washington's political circles, says incoming ACEC/PAC Chair Charles J. Gozdiewski, executive chairman, Hardesty & Hanover.

“When you have elected officials saying that your organization has a million-dollar PAC, we get a lot of people's attention,” Gozdiewski says. “We don’t have to knock on a lot of doors. They’re coming to us to ask for help and listening to our issues.”

ACEC/PAC raised $1,010,000 last year to support federal candidates on a bipartisan basis who support the engineering industry's agenda in Congress. The 2016 total eclipsed the previous year's record contributions of $982,000.

ACEC/PAC is currently the largest PAC in the design industry, having tripled in size over 10 years. It ranks among the top 3 percent of all PACS in the United States.

2016 ACEC/PAC Chair Christopher Robertson, who is vice president, Shannon & Wilson, Inc., credited another record-breaking year to a fundamental culture shift in the way Member Organizations and individual engineering professionals view their role in legislation and advocacy.

“Everybody has been working so hard on it for the last few years, and there's been a lot of education and conditioning,” Robertson says. “In my office, when fall came around, one senior engineer asked me, 'Isn't this the time of year when you ask me for a PAC contribution?' Now you ring the bell, and they’re ready.”
PAC contributions continue to have a significant impact on issues facing the engineering industry. In November, 97 percent of the federal candidates ACEC supported won their election to the U.S. House or Senate. “If we can do that in every election, we can have an impact on all issues in the United States,” Gozdziewski says. In 2017, ACEC could play a central role in President Trump’s plan to allocate a billion dollars to the nation’s infrastructure. “It’s going to be more and more important for us to have a seat at the table,” he adds.

ACEC spent nearly $2 million on congressional candidates and committees in the 2015–2016 election cycle, an exponential increase from 2007–2008 when ACEC’s disbursement budget totaled $700,000 for the election cycle.

ACEC/PAC broke other records, as well, in the number of states making their individual fundraising goals and number of PAC contributors. Overall 41 states reached their contribution goals, up from the previous record of 38 in 2015. Total PAC donors also increased from 2,750 to 2,800.

Millennials and first-time contributors made a significant impact on 2016 donations, as 758 new contributors gave a total of $131,500 during the calendar year.

**FORMULA FOR SUCCESS**
ACEC/Ohio raised a third of its donations from first-time donors this year and reached its fundraising goal for the first time in 10 years.

“When we’re making marvelous progress. More and more people are understanding the importance of the national PAC,” says Thomas Mosure, ACEC/Ohio’s PAC Champion. “We’re building momentum with a refocus on getting people engaged at our regional meetings, on our board and all our committees.”

ACEC/Ohio’s formula for success includes expecting members on all boards and committees to contribute to the PAC and electing PAC committees at the start of the calendar year instead of in July, which is customary. “The problem was getting out of the gate,” says Mosure, who is also president and CEO of MS Consultants, Inc. “This year, we started the campaign in January—that was a major benefit for us.”

Mosure urges all ACEC members to get involved beyond simply donating to the PAC. “If they just pay their dues and that’s it, they’re not going to understand the small battles that we’re winning all the time on their behalf,” Mosure says. “Everybody derives the benefit of those few people that give their time.”

ACEC/New Jersey reached its fundraising goal for the second year in a row, with key assistance from its Young Professionals Committee, comprised of about 20 engineers under the age of 40. The group helped expand New Jersey’s contributor network and chaired a networking event. Other events throughout the year included golf outings and cocktail receptions with local legislators, says Glen Kartalis, ACEC/New Jersey PAC Champion.

Their efforts paid off as ACEC/New Jersey saw a 20 percent increase in new contributors. “We’ve also gotten tremendous support from each of our committee members,” says Kartalis, who is also senior vice president at AECOM.

**NEW YORK’S SUSTAINABLE PLAN**
ACEC/New York reached its PAC goal for the third consecutive year. “I think we have a sustainable PAC campaign that can easily carry forward to the next PAC Champions,” says Gozdziewski, who is New York’s co-PAC Champion with Tom Cascino, vice president at AECOM.

Gozdziewski and Cascino took a divide-and-conquer approach to their 2016 PAC efforts. ACEC/New York’s membership is scattered among eight regions, with about 60 percent of Member Firms residing in the New York City metropolitan area, Long Island and Westchester. Cascino took the lead in organizing fundraising efforts in upstate New York, while Gozdziewski championed the metro area.

What began as one or two events a few years ago has evolved into annual events in seven of eight regions. “We’re looking to tailor the events to the geographic attractions in those regions,” says Gozdziewski. A hockey night fundraiser was held in Western New York. Schenectady-area members were invited to a play and dinner. Hudson Valley and Long Island coordinated golf outings, and the New York metro area held a lunch and Broadway play event.

To increase participation in the PAC, “your leadership has to step up to understand it, be able to explain it and be part of the PAC giving,” Gozdziewski says.

**AHEAD OF THE PAC**
ACEC/Illinois, which raised more overall ACEC/PAC funds than any state in the country, easily reached its goal again in 2016. “This has become part of our culture,” says John O’Neill, one of three Illinois co-PAC Champions, along with Mark Harms, president of geotechnical services at SCI Engineering, Inc., and Charles “Chip” Craddock, executive vice president at Clark Dietz, Inc.

“Illinois has a long history of culturally operating under that model that these contributions are the currency of conversation,” says O’Neill, who is also vice president and operations manager for Michael Baker International in Chicago. “It allows us to do things for our industry that make things more stable, expand our capabilities and, as a colleague likes to say, puts us at the table instead of on the menu.”

Harms owes the state’s fundraising success to the
committee’s peer-to-peer contact for contributions, a clear expectation by committee members that involvement means participation in the PAC and statewide events, which included a drone raffle and a Bluetooth speaker system giveaway. “It’s always some tech element that appeals to them—or it helps rationalize the contribution,” Harms says.

He’s also proud of the large Illinois contingent that attends ACEC’s Annual Convention and Legislative Summit each spring. “You can see the relationships [with representatives] that are made at home when we go to D.C.,” Harms says. “We’re able to support our industry’s objectives, and we make valuable visits [to our representatives] as part of that convention.”

MAKING STRIDES
Several states made great strides toward their annual goals.

Texas raised more PAC funds than ever before in 2016 under the leadership of PAC co-Champions Keith Jackson, senior vice president of HNTB Corp., and Gary Raba, chairman and CEO of Raba Kistner, Inc.

Although the state reached only 25 percent of its $88,000 goal, Jackson and Raba expect the state to do much better this year.

“I think there are real opportunities for us,” says Raba. “We’ve already got a politically sophisticated group of involved members through our Texas Public Policy Committee.” Adds Jackson, “We’ve just got to do a better job connecting the dots for our members and demonstrating that what happens in Washington, D.C. impacts our members every bit as much as what happens in Austin.”

In Florida the ACEC/PAC effort was headed up by co-Champions Andy Cummings of Connelly and Wicker in Jacksonville, Florida, and Emerging Leader Jason Webber of Kimley Horn in Delray Beach, Florida. Despite a fundraising target of more than $47,000, Cummings and Webber led the state to goal for the third straight year. They both agree a key reason for their success was the monthly conference calls with their PAC committee of about a dozen ACEC/Florida leaders, where they review progress and create expectations for the group. The committee led by example as everyone gave at least $1,000 themselves, while Cummings gave at the Chairman’s Club level ($2,500) and Webber, despite being just 31 years old, became ACEC’s 14th Capitol Club member ($5,000 in a calendar year) for 2016.

Now that ACEC/PAC has reached $1 million, Robertson hopes the organization will sustain that and continue to step up its performance in other ways, such as delivering contributions personally to legislators in their districts and with visits to Washington, D.C.

Robertson is especially pleased that ACEC recently passed an initiative that formally encourages Member Organizations to deliver at least some ACEC/PAC checks back in the state at local candidate events and with other ACEC members. Currently that target is 50 percent of the total PAC contribution to the candidate, but Robertson notes that “we probably are going to move that up a notch each year.”

“When we make that personal connection, then we’re much more able to get our message through to them.”

“We’re building momentum with a refocus on getting people engaged at our regional meetings, on our board and all our committees.”

THOMAS MOSURE
ACEC/Ohio PAC CHAMPION

Stacy Collett is a business and technology writer based in Chicago.
ACEC/PAC’s record-breaking 2016 included all-time highs in the total number of PAC donors (2,800) and the number of states (41) reaching their fundraising goals. The following is a complete listing of 2016 donors.

*Means state made its 2016 PAC goal

**Designates 2016 Chairman’s Club Member ($2,500 donor)

***Designates 2016 Millennium Club Member ($1,000 donor)

**Bold** means PAC Champion(s) for the state

**Bold Underlined** designates 2016 Capitol Club Member ($5,000 donor)

**ARKANSAS**
Nate Bachelor
Steven Beam
Kevin Beaumont
Mark Baxter
Matt Crafton
Braden Davidson
Andrew Dibble
Roger Dodds
Jeffrey Geurian
Bart Gilbreath
Brad Hammond
Byron Hicks
Jerry Holder
Maneesh Krishnan
Brent Massey
James Montgomery
Brian Moore
Herbert Parker
Stephen Pawluczak
Ron Peterson
Billy Robinson
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Mike Stengel
Don Treade
Tamee Tucker
Andrew Williams
L. Carl Yates
Scott Zotti

**CALIFORNIA**
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Lee Abramson
Shahinaz Ahmad
Jeffrey Allen
Dawn Antonucci
Gary Antonucci
Roger Ball
Thomas Blackburn
Jonathan Blanchard
Gene Bougados
David Caneer
Ryan Carlson
Clifford Simental
Christopher Squires
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Aundrea Tirapelle
Edgar Torres
Robert Torres
Stephanie Wagner
William Wagner
Jeff Walker
Kurt Yoshio
Lydia Zabrycki
John Zumwalde

**COLORADO**
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Matthew Andrews
Julie Ann Dill
Thomas Anzia
Jennifer Ashworth
Todd Bechtel
Peter Binney
Dean Bradley
Gary Brierley
Allan Brown
Matthew Brown
Holly Buck
James Cable
Ralph Christie
Susan Christie
Nancy Clanton
John Clarke
Scott Colvin
Dave DiFulvio
Peter Dixon
Brad Doyle
Charles Dwyer
Scott Epstein
Lauren Evans
Christopher Fasching
Robert Feldburg
David Galbreath
Thor Gjelsten
Heidi Gordon
William Green
Mark Hamouz

**CONNECTICUT**
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H. James Beice
John Braccio
Paul Brady
James Brynes
James Falvey
John Foster
James Fuda
Gerald Furrier
Gerald Gerleitz
John Gilmore

**ALABAMA**
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Bob Barnett
Kevin Blake
Renee Casillas
Jeremy Deal
Josh Dogan
Alein Gallet
Mark McAdams
Jerry McCarley
H. Dean McClure
Jim Meads
Joe Matthews
Jay Morgan
Guy O’Connor
Heather Page
John Smith
Steven Speake
Jason Walker
Forest Wilson
Jennifer Wilson

**ALASKA**
Duane Anderson
Hans Arnatt
Pete Bellesa
Dennis Berry
Bret Coburn
Royce Condon
Floyd Damron
Chris Darrah
Stafford Glaashan
Elizabeth Greer
Tim Grier
Matt Henry
Steven Kari
Gary Kasion
Chris Miller
Mark Musial
Kimberly Nielsen
Michael Pochop
William Preton
Mike Rabe
Charles Riddle
Matthew Stone
Len Story
Michael Story
Willem Van Hemert
Timothy Vig
Paul Witt

**ARIZONA**
John Alcorn
Alejandro Angel
Michael Bechtel
Bruce Beenken
Jennifer Bixby
ACEC spent nearly $2 million on congressional candidates and committees in the 2015-2016 election cycle.
From left to right: Peter Lee, Resource International; Fred Selin, Engineering Associates; Sen. Portman; Chris Preto, Mott MacDonald; and Habi Farah, TranSystems.
It ranks among the top three percent of all PACs in the United States.
Michael Mangione
Charlie Manning
Jessica Mariani
Richard Maxwell
Mark McAnany
Bill McCarthy
William McCormick
James McDuffee
Richard McFadden
Thomas McLaughlin
Donald McMahon
Bernard McNelly
Walter Mehl
Martin Merriether
Jennifer Michniecwick
Brian Miller
Kevin Mulligan
Mia Nadasky
Hannah O’Grady
Christopher Paolino
Fotios Papamichael
Jennifer Pawenski
Mark Pawlick
Richard Perrin
Richard Peters
Nicholas Pinto
Charles Pisano
Jason Pitingaro
Om Pulpil
Gina Portofar
Robert Radley
Mike Randall
Jim Richert
Milo Rivero
John Robson
Joe Rock
Karl Rohde
Lorenzo Ronoli
Mary-Beth Rumble
Lee Sacket
Martin Schwartzberg
Susan Tangel
David Tanenbaum
Mark Stier
James Stewart
Scott Smith
Jay Simson
Mitch Simpler
Martin Schwartzberg
Nicholas Pinto
Mark Pawlick
Jennifer Pawenski
Michael Duffey
Mark Droll
Sandy Doyle-Ahern
John Dingeldein
Brian David
Jon Cox
Michael Ciotola
Tim Casto
Kevin Miller
Nolan Miller
Marc Montgomery
David Mours
Thomas Mosure
Stephen Nichols
Katrina Nolan
Bret Oakes
Stephen Pasnack
Scott Peyton
John Pierko
Daren Pleiman
Christopher Preto
David Pyzoha
Glenda Randall

James Parker
Ana Passman
Howard Penny
Elizabeth Phillip
David Pond
Jeremy Potter
Lou Raymond
Thomas Raymond
Amir Sachan
Stephen Safran
Greg Saller
Lisa Samples
Reggie Scales
Eric Shaffer
Ben Simpson
James Smith
Wendee Smith
Greg Stewart
Stuart Sutton
Shannon Switzen
Dewayne Sykes
Bryan Taylor
Michael Ways
Richard Wells
Doug Wheater
Jeff Wilson
Jon Wilson
Mark Wilson

NORTH DAKOTA*
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Gary Brennan
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Jeff LeDoux
Jeffrey McElwain
Eric Michaud
Dain Miller
Barry Schuchard
Dustin Scott
Jeffry Volk*

OHIO*
Laurie Adams
Michael Avellano
Michael Bandwen
Douglas Batts
Matthew Bell
Ronald Bender
Joseph Bolzenius
David Breitfeller
Raymond Briya
Daniel Bucher
Michael Baetner
Brad Bush
Aaron Cal
Kevin Carpenter
Tim Casto
Michael Cialotola
Michael Couvreur
Jon Cox
Ruth Crane
Brian David
John Dingeldein
Aaron Domini
Sandy Doyle-Ahern
Mark Droll
Michael Duffy
Ben Dusina
Frank Eisenhower
Ronald Erb
Eugene Esser
Michael Frank
Elizabeth Fulton

Kevin Reichert
Joshua Reinick
Tracey Riepenhoff
Scott Ross
Frances Rourke
Michael Rowland
C.K. Suyaperya
Dan Schertler
David Schierloeh
Ronald Schultz
Evan Scott
Gary Sebach
A. Frederick Seling
Fred Seling
Steven Shadix
Andrew Shahan
Clifford Shriver
Jay Shutt
Mark Skellenger
Anthony Slanec
C. Michael Smith
Rod Sommer
Daniel Springer
Dan Steeley
Jay Stewart
Michael Sturdevant
Michael Sugrue
David Tomasa
Timothy Van Echo
Stephen Ward
Kevin Wilcox
David Wiles
Gary Williams
Randy Wolfe
David Wright

ACCE/South Carolina members meet with Sen. Tim Scott, R-S.C., last spring during the ACEC Annual Convention in Washington, D.C. From left to right: Larry Hargrove, M&S Engineering; Sen. Scott; Melvin Williams, S&M; and Adam Jones, ACEC/S.C.

Bronson Funk
Craig Galecka
Rocco Gallo
Matt Gardner
Clifford Goedon
Joseph Grani
Christopher Hall
J. Wesley Hall
Charles Hammontree
Mohammed Haque
Jacqueline Harmon
Stanley Harris
Greg Heaton
Mark Henderson
James Hous
Daniel Hoying
John Hyre
Laurie Julg
Ali Jamshidi
Bipender Jindal
Jack Jones
Matthew Justus
H. Matthew Kairouz
J. Timothy King
Eric Kister
James Kleingers
Steve Korte
Thomas Kramer
Michael Krofzl
David Krook
Heather Lacey
Peter Lanza
Thomas Lauhie
Brad Lowery
Marta Majidzadeh
Lampman
Stephen Mary
James Mawhoret
Mark McCabe
Nicholas McCallough
Richard McGuinick
Bethanie Meek
Kimberly Messer
Troy Messer
Lynn Miggins
James Miller
Kevin Miller
Nolan Miller
Marc Montgomery
David Mours
Thomas Mosure
Stephen Nichols
Katrina Nolan
Bret Oakes
Stephen Pasnack
Scott Peyton
John Pierko
Daren Pleiman
Christopher Preto
David Pyzoha
Glenda Randall

North Carolina*
Andy Abernathy

North Carolina*
Andy Abernathy

Ohio*
Laurie Adams
Michael Avellano
Michael Bandwen
Douglas Batts
Matthew Bell
Ronald Bender
Joseph Bolzenius
David Breitfeller
Raymond Briya
Daniel Bucher
Michael Baetner
Brad Bush
Aaron Cal
Kevin Carpenter
Tim Casto
Michael Cialotola
Michael Couvreur
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Ronald Schultz
Evan Scott
Gary Sebach
A. Frederick Seling
Fred Seling
Steven Shadix
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Jay Stewart
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Michael Sugrue
David Tomasa
Timothy Van Echo
Stephen Ward
Kevin Wilcox
David Wiles
Gary Williams
Randy Wolfe
David Wright

Todd Yeung
Chiranjiv Zarski

OKLAHOMA*
Greg Allen
Holli Allen
Reza Amini
Karl Baldwin
Jeremy Baier
Russell Beatty
James Benson
John Blickensderfer
Jeremy Boswell
J. Brett Cabiness
Brandon Claborn
Todd Cochran
Geoffrey Cowalt
David Cross
Joe Davis
Bill Diedrich
Edward Donworth
Rhonda Dudeck
Gary Evans
Lauran Evans
Tommy Evans
Chad Grinstead
Denise Hale
Tricia Hatley
Jim Hempill
Thomas Hendrick
Martin Hepp
Shari Hiller
Mike Homan
Rich Horrrocks

Millennials and first-time contributors made a significant impact on 2016 donations as 758 new contributors gave a total of $131,500 during the calendar year.
ACEC/South Dakota leadership met with Sen. John Thune, R-S.D., in Sioux Falls last summer. From left to right: Jason Kienstad, HDR; Bruce Card, American Engineering Testing; Josh Larson, McAulry Engineering; David Odenes, Banner Associates; ACEC/D. President Kim McAulry, McAulry Engineering; Sen. Thune; Mark Grebner, West Plains Engineering; Lee Kaffer, HDR; and Doug Wessel, Banner Associates.
APRIL 23-26, 2017 | MARRIOTT WARDMAN PARK | WASHINGTON D.C.

THE NEW POLITICAL LANDSCAPE ★
Nicolle Wallace, Political Analyst and Former White House Director of Communications

THE BUSINESS FORECAST ★
Geoff Colvin, Senior Editor, FORTUNE

INDUSTRY PERSPECTIVES ★
Jacque Hinman, Chairman & CEO, CH2M
Fred Werner, President, Design & Consulting Services, AECOM
Greg Kelly, President and CEO, U.S., Central and South America, WSP | Parsons Brinckerhoff

CONGRESSIONAL PERSPECTIVES: THE NEW ADMINISTRATION AND CONGRESS ★
A discussion with three prominent lawmakers moderated by Amy Walter, Cook Political Report and former Political Director for ABC News

TRANSPORTATION OUTLOOK ★
Leslie Richards, Secretary of Transportation, PennDOT
Grace Crunican, General Manager, Bay Area Rapid Transit (BART)
Rina Cutler, Senior Director, Amtrak

DIGITALIZATION, ANALYTICS AND AUGMENTED REALITY - DRIVING CHANGE IN THE AEC INDUSTRY ★
Professor Markus Buehler, Department Head, Civil/Environmental Engineering, MIT
Terry Bennett, Senior Industry Strategist, Autodesk
This year’s fiftieth anniversary awards program on April 25, will be hosted by Kevin Nealon, noted actor, comedian and current co-star of the CBS sitcom “Man with a Plan.”

Since 1967, when the annual EEA competition was established, more than 7,000 projects have been submitted.

And what began as an awards luncheon has now evolved into at an elegant, black-tie dinner attended by more than 600 members and guests.

Top-honored “Grand Conceptor Award” projects have been wide-ranging—from the Boeing Space Simulation Laboratory (Andersen, Bjornstad & Kane, 1968) to the Gills Onions Advanced Energy Recovery System (HDR, 2010); from the Space Shuttle Launch Complex (Sverdrup & Parcel and Associates, 1985) to the Olympic Sculpture Park (Magnusson Klemencic Associates, 2008); and from the AEOS 3.67 Meter Telescope Facility (Sato & Associates, 2000) to the Kauffman Center for the Performing Arts (Arup, 2013).

Turn the page for a timeline of top EEA winners over the years.
GRAND CONCEPTOR AWARD WINNERS (1967 - 2016)

**1967**
Cornell, Howland, Hayes & Merrifield, Inc.
Lake Tahoe Water Reclamation Plant
Corvallis, Oregon

**1968**
Andersen, Bjornstad & Kane
Boeing Space Simulation Laboratory & Structural Test Floor
Kent, Washington

**1969**
Ryckman, Edgerly, Tomlinson & Associates
Equalization Basin for Industrial Wastewater Treatment
St. Louis

**1970**
International Engineering Co.
New Bullards Bar Dam
San Francisco

**1971**
Sandwell International, Inc.
Draft Tissue Mill
Portland, Oregon

**1972**
Midwestern Consulting, Inc.
Site Engineering for Land Reclamation
Ann Arbor, Michigan

**1973**
Ketchum-Konkel-Barrett-Nickel-Austin
Hangar Structure for TWAs Airframe Overhaul Facility
Denver

**1974**
Greenleaf/Telesca - Kellerman & Dragnet
Hangar No. 2 for National Airlines
Miami

**1975**
Howard Needles Tammen & Bergendoff
Rio-Niteroi Bridge - Main Steel Spans
Kansas City, Missouri

**1976**
Tippetts-Abbet-McCarthy-Stratton
Marine Terminal Anchorage, Alaska

**1977**
Kramer, Chin & Mayo
The Seattle Aquarium
Seattle

**1978**
CH2M HILL
Bioconversion Facility
Denver

**1979**
URS/Madigan-Praeger, Inc.
Unique Dry Dock for Floating Factory for Universe Tankships
New York

**1980**
Williams & Works, Inc.
Pilot Project to IncreaseFinal Clarifier Capacity
Grand Rapids, Michigan

**1981**
McClelland Engineers/CBM Engineers, Inc.
Texas Commerce Tower
Houston

**1982**
Williams & Works, Inc./Environmental Data, Inc.
Cleanup of a Chemical Spill - Woodland Park
Grand Rapids, Michigan

**1983**
Sverdrup & Parcel and Associates, Inc.
(NeW Sverdrup Corp.)
Interstate 205 Columbia River Bridge
St. Louis

**1984**
Greiner Engineering Sciences, Inc.
First U.S. Alum Recovery Facility
Durham, North Carolina

**1985**
Sverdrup & Parcel and Associates (New Sverdrup Corp.)
Space Shuttle Launch Complex, Vandenberg AFB
California

**1986**
Sverdrup/Parsons Brinckerhoff
Fort McHenry Tunnel
Baltimore

**1987**
Howard Needles Tammen & Bergendoff
I-90 Mt. Baker Ridge Tunnel Bore
Seattle

**1988**
Briley Wild & Associates
Breakaway Trails - Engineered Microcosm
Ormond Beach, Florida

**1989**
Boyle Engineering Corp.
Water Conserv II
Newport Beach, California

**1990**
Howard Needles Tammen & Bergendoff
Dame Point Bridge
Jacksonville, Florida

**1991**
CH2M HILL
Carolina Bay Natural Effluent Disposal System
Charleston, S. Carolina

**1992**
Michael Baker Jr., Inc.
Vine Expressway
Philadelphia

**1993**
Michaud, Cooley, Erickson and Associates, Inc.
Centralized Laser Smoke Evacuation System
Minneapolis

**1994**
Environmental Engineering & Technology, Inc.
First U.S. Alum Recovery Facility
Durham, North Carolina

**1995**
Sverdrup Civil, Inc.
St. Louis Metrolink Rail Transit System
St. Louis

**1996**
Skilling Ward Magnusson Barkshire, Inc.
KeyArena
Seattle

**1997**
Parsons Brinckerhoff Quade & Douglas, Inc.
The Coleman Bridge Replacement
Yorktown, Virginia

**1998**
Boyle Engineering Corp.
Water Conserv II
Newport Beach, California

**1999**
Howard Needles Tammen & Bergendoff
Dame Point Bridge
Jacksonville, Florida

**2000**
CH2M HILL
Carolina Bay Natural Effluent Disposal System
Charleston, S. Carolina

**2001**
Parsons Brinckerhoff Quade & Douglas, Inc.
The Coleman Bridge Replacement
Yorktown, Virginia

**2002**
Comedian and TV talk show host Ross Shafer emcees his first EEA Gala and would continue through 2014.

**2007**
To enhance EEA suspense, the Grand Conceptor Award winner is revealed at the Gala without the firm’s prior knowledge, and includes a commemorative video.
To recognize all entries as examples of national engineering excellence, those not selected for top honors receive National Recognition Awards.

Gala after party introduced, featuring live music and dancing.

Customized online awards entry system enables paperless submission and judging process.

Television and movie star Kevin Nealon hosts 50th anniversary celebration. Number of awards increased from 24 to 36.
Professional licensure is under assault in America. Many of the political principles that helped to elect populist candidates to high office—limited government and a free market—have fueled legislative efforts to limit or even eliminate the need for professional licensure at the state level for a host of occupations, including engineering.

To date, and largely due to aggressive responses by ACEC Member Organizations, the de-licensing campaigns have not been successful—although in Arizona, for example, professional geologist licensing was undermined. Everyone involved, however, agrees that the licensing fight is just getting started.

“Most of these efforts claim as their inspiration the libertarian viewpoint that government should not be in the business of preventing people from getting jobs,” says Doug Folk, an attorney with Clark Hill’s national construction law practice group in Scottsdale, Arizona.

“As a simple statement of principles, you can’t disagree with that, but there’s so much more at stake. These professions were regulated because people were losing their lives when structures were improperly engineered or constructed. Engineering and other design professions are regulated to protect the public through a combination of testing and licensure that has worked well for almost 100 years.”
Engineering takes on the challenge of defending state professional licensure.
A LONG AND SUCCESSFUL HISTORY

In 1907, Wyoming became the first state to license engineers, and today every state, plus the District of Columbia, Guam, Northern Mariana Islands, Puerto Rico and the U.S. Virgin Islands, licenses professional engineers.

Since 1920, the National Council of Examiners for Engineering and Surveying developed and offered standard examinations for engineering and surveying licensure across all the states. (Architects have a parallel organization, the National Council of Architectural Registration Boards.)

“In part, our current system of professional licensing across the states has been so flexible and effective, that its purpose became invisible to those who would change it,” says Folk. “We need to explain to critics why this system isn’t broke, and in no need of fixing.”

MANICURISTS AND ANIMAL MASSAGERS

While the state licensing system may not be broken for engineers, architects and other highly skilled professions, one could argue that it doesn’t work for others.

In the early 1950s, less than 5 percent of the U.S. workforce was covered by state licensing laws. That level ballooned to 20 percent in 2000, Department of Labor and Census data show. In 2003, the Council of State Governments estimated that more than 800 occupations were licensed in at least one state, and in a 2008 Westat survey, 29 percent of workers said they were required to have a government-issued license to do their job.

Reasonable people might question the reasoning behind state licensing of yoga instructors (Arizona), animal massagers (Florida) or manicurists (many states). Licensing in lower-income professions might act as a barrier to entry, possibly preventing people who can’t afford the required training or the license fee from even entering the profession.

A recent study by the Goldwater Institute, which opposes licensing laws, found that states that license more than 50 percent of lower-income occupations have an 11 percent lower entrepreneurship rate than the national average; states that license less than a third had an entrepreneurship rate that is 11 percent higher.

A 2009 study by Morris Kleiner and Alan Krueger reported that licensed professions enjoy a 14 percent wage premium in the market. And the American Legislative Exchange Council (ALEC), which also opposes licensing, asserts that the system increases unemployment by 1 percent.

Given this situation, it would make sense for licensing opponents to target lower-income professions, while retaining the system for professions where the public health, safety and welfare would be affected.

“A lot of them understand that,” says Dennis Ford, president of FTN Associates in Little Rock, Arkansas, who helped lead a recent fight in his state against delicensing. “Rather than address each occupation on its merits, though, they want to take the matter on wholesale.”

POLICY AND POLITICS

Two events have spurred efforts to limit or eliminate professional licensing.

In 2008, ALEC developed its model law titled The Occupational Licensing Relief and Job Creation Act, to ensure “that an individual may pursue lawful occupation free from unnecessary occupational regulations, and protect against the use of occupational regulations to reduce competition and increase prices to consumers.”

ALEC is an organization of conservative state legislators and private sector representatives that drafts model state-level legislation for distribution among state governments. ALEC’s mission is “to advance the fundamental principles of free-market enterprise, limited government and federalism at the state level.”

ALEC’s model bill has been the basis for efforts in several states to limit licensing, including Arkansas, Arizona, Indiana, Missouri and Florida. If passed, the bill requires that the state prove in court or in administrative hearings that it is enforcing an occupational law for health and safety reasons and not as a barrier to entry.

The second event occurred in 2015 when the U.S. Supreme Court ruled against the North Carolina Board of Dental Examiners in its efforts to stop non-dentists from offering teeth-whitening services. The Supreme Court said that licensing boards that are dominated by the professionals being regulated—eight of the 10 North Carolina board members were dentists—and don’t have “active supervision” from the state are not immune from antitrust challenges.

“This ruling lands at the interface of policy and politics,” says Folk. “The North Carolina case was correctly decided based on some very bad facts, but it is not representative of how professional licensing boards for design professionals operate. Politicians who are so inclined misuse that decision to justify deregulating a profession or bringing state licensing boards under direct control of elected officials.”

“If a legislature deregulates the practice of engineering, firms in a deregulated state cannot gain reciprocity registrations in other states because their licenses are not comparable.”

DOUG FOLK | CLARK HILL
WHAT IS A TRAINED GEOLOGIST?

Both of these issues came to the fore in Arizona in 2016, when Gov. Doug Ducey and his allies in the legislature proposed H.B. 2613, aiming to abolish state licenses for geologists and landscape architects, as well as yoga instructors, food-packing contractors, driving school teachers and assayers.

Doug Bartlett, a geologist and principal of Clear Creek Associates in Scottsdale, helped to lead the Arizona section of the American Institute of Professional Geologist’s (AIPG) opposition to the bill. “Taking on the engineers would have been quite a feat because they are the largest professional group,” he says. “I think they figured we wouldn’t have the resources to fight.”

The bill also called for rolling all independent state regulatory boards—including the Arizona State Board of Technical Registration, which licenses engineers, architects, landscape architects, geologists and assayers—into the state’s Department of Administration, putting them under Ducey’s control.

“Two previous governors analyzed the costs and benefits of consolidation and determined that it didn’t benefit the public or save the government any money,” says Folk. “With consolidation, if the board made a decision the governor didn’t like, he could veto it. Or, if he didn’t like the executive director, he could fire her. That’s not what the legislature had in mind when it created this board.”

The landscape architects were able to extricate themselves from the legislation, leaving the geologists to fight, although Bartlett says the engineering community helped a lot. “They lobbied against the bill with their legislators, voicing their concerns,” he says.

Bartlett says the arguments supporting the bill were flimsy. The governor’s office asserted in a press release that the bill included geologists because “licenses should only be required when they are truly designed to protect the public health and safety.”

By that logic, geologists should be licensed, Bartlett says. “Geologists are involved in countless instances that involve public safety, such as water quality, seismic issues and underpinning for highway overpasses,” he says.

Licensing isn’t a barrier to entry, Bartlett says, and doesn’t prevent anyone from getting a job as a geologist. “What it does is prevent an inexperienced geologist from getting into a position where they are making decisions that impact public health and safety,” he says.

Furthermore, Bartlett argues that independent licensing boards are not expensive and inefficient. He points out that the board is funded entirely through licensing fees and provides revenue to the General Fund.

One argument that wasn’t raised, but may have played a part, is that licensing increases the salaries of professionals. “I think there’s a motivation to reduce the cost of hiring professional consultants,” Bartlett says.

A modified version of H.B. 2613 eventually passed the legislature and was signed into law by the governor, creating a new unregulated category of “trained geologist.” While trained geologists do not need to have a license, they are required to have a geology degree from an accredited university, have at least four years of experience and must disclose their lack of licensing to a prospective employer or client.

“Unfortunately,” says Bartlett, “since the trained geologists are not licensed, there is no regulatory agency that has the authority to police them to ensure that they are conforming to these standards.”

ADEQUATE REGULATORY OVERSIGHT

Licensing for engineers has faced legislative challenges in at least two other states.

In 2014, the Indiana Legislature formed the Jobs Creation Committee (JCC) to look at deregulating occupations under the Indiana Professional Licensing Agency, which oversees 38 boards that issue more than 70 professional licenses to 490,000 professionals in the state.

In 2015, the JCC recommended by a 5-0 vote that the state stop regulating and licensing engineers and 10 other professions, including home inspectors and hearing aid dealers. In its recommendations in the meeting minutes the committee wrote, “It is the JCC’s opinion that there is adequate regulatory oversight from other governmental agencies when it comes to the work performed by the engineer in their construction/design.”

The engineering community, led by ACEC/Indiana, mobilized. “We assembled a coalition of stakeholders that would be affected,” says Ross Snider, president of USI Consultants, Inc., in Indianapolis. “We provided testimony on the value of registration, both for public safety and because it actually helps businesses in the state, allowing engineering firms to operate across state lines.”
The coalition reached out to then-Gov. Mike Pence, urging him to add his voice to the debate, and in late July 2015, Pence's office released a statement, “The governor believes it is a mistake not to license engineers and will make sure the recommendation to do so does not stand.”

At a JCC meeting a short time after the governor’s statement, the committee voted to drop the issue of delicensing engineers. “Gov. Pence’s public support was essential to help these other decision-makers see the value in retaining engineer licensing,” says ACEC/Indiana Executive Director Beth Bauer.

Licensing opponents took a much broader approach in Arkansas in 2015. “It was a real fight,” says FTN Associates’ Ford. “They introduced what they described as a ‘Right to Work’ bill that said that anybody who felt they were qualified to do something could do that job. It didn’t wipe out existing licenses, but you would no longer have needed one to work in the state, and it covered everything, from plumbers to doctors to engineers.”

Again, the engineering community, led by ACEC/Arkansas, was quick to respond. “We were extremely active,” says Ford. “Our members contacted their legislators and told them it was not a good bill, and it was not good for the state. We worked with the state Chamber of Commerce and together we kept the bill from making it to the floor of the House.”

**START EARLY**

Though the anti-licensing effort failed in Arkansas, looking ahead to 2017, Ford says, “I would not be at all surprised if it doesn’t raise its ugly head again.”

Folk expects to see de-licensing efforts expand to many other states. “This is now an issue at the national level because we have a lot of people who have come into power who think it is their mission to cut the size of state government,” Folk says.

“We provided testimony on the value of registration, both for public safety and because it actually helps businesses in the state, allowing engineering firms to operate across state lines.”

ROSS SNIDER | USI CONSULTANTS, INC.
Given that reality, these experienced veterans have some advice on how to defeat de-licensing.

“Start early,” says Folk. “Don’t wait until a bill is introduced. Take steps now to be prepared.”

He recommends that Member Organizations confer with their state licensing board and responsible legislators to assure that the structure, composition and operations of their board comply with the Supreme Court’s North Carolina Board of Dental Examiners decision. He believes most do and that should be emphasized.

“Look at the existing board structure, rules, and how it enforces its statutes,” Folk says, “make sure it’s balanced, protecting the public interest and is not susceptible to antitrust challenges. Independent review of board rules for their market impact and the availability of independent administrative law judges to decide disciplinary and unauthorized practice cases also satisfy antitrust concerns while not undermining a board’s unique role in regulating professional practice.”

Build as broad a base of support as you can, says Snider. ACEC/Indiana brought the Indiana Association of Cities and Towns and the National Federation of Independent Businesses into their coalition and had verbal support from the Chamber of Commerce.

“The coalition was a key factor,” he says. “Having other stakeholders who weren’t PEs demonstrated that the issue reached beyond those who were affected.”

Bartlett says one of the best decisions AIPG made in Arizona was to hire lobbyists. “They provided strategies for a grassroots letter writing campaign, set up meetings with the bill writers and arranged for several of us to testify before the House and Senate committees,” he says.

In discussions with legislators and in testimony, two messages had the most impact.

“Public health and safety is a powerful argument. Ask them if they would like to choose between a licensed or unlicensed doctor,” says Folk. “When you bring it down to the level of their lives and their health, they quickly understand why licensing is necessary.”

Reciprocity also carries a lot of weight. “If a legislature deregulates the practice of engineering, firms in a deregulated state cannot gain reciprocity registrations in other states because their licenses are not comparable,” says Folk. “De-licensing hurts the businesses in their own state.”

The campaign to defend professional licensure continues, and ACEC and the Member Organizations will continue to work in close cooperation to meet the challenges head-on.

Gerry Donohue is ACEC’s senior communications writer. He can be reached at gdonohue@acec.org.

A 2009 study by Morris Kleiner and Alan Krueger reported that licensed professions enjoy a 14 percent wage premium in the market.
Over the last couple of decades, as state departments of transportation (DOTs) have attempted to better manage project delivery, the contracting out of engineering design to private companies has become increasingly common. While decisions to contract out have typically been driven by a range of factors, including the need to access unique technical expertise or meet challenging deadlines, a question has continued to nag policymakers—whether DOTs actually save money by utilizing the expertise of outside engineering firms.

It’s no small issue—yet it’s received only cursory examination in the past. “There have been a lot of opinions, thoughts and misconceptions floating around on the topic,” says Rick Worrel, president of Affinis Corp., a civil engineering, surveying and consulting services firm headquartered in Overland Park, Kansas. “The reality is that there hasn’t been hard data or evidence that it’s less expensive, even though many engineers have intuitively known this to be true.”

However, in August 2016, New York University’s Tandon School of Engineering released a comprehensive analysis of the issue. The report, Engineering Design Costs: In-House versus Contracting Out, examined the true costs of DOTs performing engineering design services in-house versus contracting out to private sector firms. The researchers examined agency and firm data in 28 states, with the goal of helping policymakers and the industry gain a better understanding of how they compare.

The report concludes that contracting out design services is beneficial in many circumstances, most notably in terms of cost. In fact, the savings can be 20 percent or more. “Agencies have up and down cycles and varying workloads. The study supports the view that agencies will save money in the long run if they use the private sector design assets that are available to them,” says F.H. “Bud” Griffis, a professor at the New York University Tandon School of Engineering and lead researcher for the initiative.
MONEY MATTERS

It’s no secret that state DOTs face unparalleled budget pressures along with a growing need to upgrade and add transportation infrastructure. But underlying the real-world issues are political and social issues. State DOTs have been criticized for contracting out services, often by labor unions which promote the belief that it’s cheaper to perform the work in-house. Likewise, lawmakers have debated in-sourcing versus contracting out, once again with cost savings in mind.

But studying the topic was no simple task. For example, the NYU report notes that simple cost comparisons fail because they fall short in measuring other relevant value indicators in the project delivery process, such as technical expertise, innovation, project schedule and managing risk, among others. Procurement laws at the federal level and in most states reinforce this view, as they require the use of Qualifications-Based Selection (QBS) for selecting architect and engineering service providers. “Under the QBS process, firms compete on the basis of the technical skills and experience of their respective design teams, with cost negotiations to follow, ensuring that public agencies receive design services best suited to individual project needs at a cost that meets the agency’s budget,” the report points out.

Still, the public debate often focuses on cost metrics and a basic presumption that, because agency personnel tend to earn less than their private sector counterparts, it must be cheaper for state DOTs to perform the design work in-house. However, those crunching the numbers or examining projects haven’t applied numbers in an equivalent way, says Griffis, former head of the Army Corps of Engineers for the New York District. This includes issues that extend beyond direct salary and into the territory of fringe benefits and overhead costs. “It can become a fairly complicated process,” he explains. “As a general rule, government entities do not calculate overhead in the same way as a private firm.”

So researchers gathered data from individual state DOTs and calculated the full spectrum of in-house costs—including labor, fringe benefits and overhead costs—in the same manner that private engineering firms treat these costs under Federal Acquisition Regulation Part 31. Although the NYU researchers had to make a few assumptions and incorporate a few estimates, such as segregation of direct and indirect labor costs, they managed to develop a framework that state legislatures, DOTs and private firms can use to more accurately compare costs. “It’s the most useful information to date on the topic,” says Dan Purvine, president of A/E Clarity Consulting and Training and a consultant to ACEC for the study. “It provides insights that haven’t been available in the past.”

BY THE NUMBERS

Gaining visibility into the cost structures of DOTs and private companies presented a few challenges, including sorting through the different ways states collect, manage and post data. Nevertheless, the researchers were able to crunch data from the states,
Cost Structure at a Glance

NYU examined cost data from 28 state DOTs, as well as corresponding data from a sample of firms in each state. Researchers calculated totals for each of the major cost categories:

DIRECT SALARY
Nationwide, the average direct salaries are approximately:
DOTs: $69,262 with a coefficient of variation of 13 percent
PRIVATE FIRMS: $75,133 with a coefficient of variation of 9 percent

FRINGE BENEFITS
Nationwide mean fringe rates (as a percentage of direct salaries) are:
DOTs: 79 percent with a coefficient of variation of 23 percent
PRIVATE FIRMS: 36 percent with a coefficient of variation of 16 percent

OVERHEAD RATES
The nationwide calculated mean overhead rate based on direct labor cost exclusive of fringe is:
DOTs: 215 percent with a coefficient of variation of 22 percent
PRIVATE FIRMS: 125 percent with a coefficient of variation of 10 percent

TOTAL AVERAGE COSTS
DOTs: $272,684
PRIVATE FIRMS: $217,020 (includes 10.5 percent average profit margin)

obtained through publicly available sources. Among the key findings: Although the direct salary of DOT employees is about 8 percent less than employees at private firms, fringe benefits for DOT employees are more than double that of private firms, and overhead rates are significantly higher for DOTs when calculated on a basis consistent with firms. This leads to a total average cost that’s about 26 percent higher for DOTs than for private firms [see box above].

Once again, however, the study continues to emphasize that cost savings are not the only factor agencies should consider when evaluating engineering service providers. As noted earlier, the report points to other factors that DOTs must consider for any given project, including staffing capacity, scheduling constraints, the need for specialized expertise, a desire for innovation, a desire to shift risk and responsibility away from taxpayers, overall quality considerations and the cost-effectiveness of a specific approach. As Worrel puts it: “A project must ultimately be viewed in a broader way.”

PATH TO PROGRESS
The NYU report has already made an impact. For example, in Kansas, the state legislature and KDOT have reviewed the findings and engaged in discussions with ACEC and private firms about the data, Worrel says. This has helped officials better understand cost frameworks for major transportation projects, he says. Officials have also introduced additional data and proposed revisions that would help deliver more accurate information. “It has been a very positive process,” he says.

The end goal is to make the information available to other states and DOTs. Purvine says the data delivers an honest comparison of the taxpayer costs in handling the design project in-house and contracting it out to a private firm. While some states are highly receptive to partnering with the private sector, others are not. “The ability to deliver accurate and actionable information is the key to gaining acceptance when and where it is possible,” he says. “This moves the conversation beyond salaries and focuses on the overall business framework. It delivers a realistic assessment.”

Purvine anticipates the industry will use the report as an incentive rather than a “hammer.”

“The report offers supportable data that has been developed in a consistent manner for all the states,” he says. “It’s a tool that will open discussions and help educate people about the real-world costs of handling design projects internally or contracting out. Nobody is advocating that DOTs should contract out all projects. It’s all about using money and resources in the most efficient way possible.”

F.H. “Bud” Griffis
NEW YORK UNIVERSITY TANDON SCHOOL OF ENGINEERING

“The study supports the view that agencies will save money in the long run if they use the private sector design assets that are available to them.”

Samuel Greengard is a business and technology writer based in West Linn, Oregon.
“It doesn’t matter if you’re driving in a race, or taking your daughter to school; smoother roads are safer for you and your family. That’s why almost all NASCAR tracks are asphalt, and why I prefer it, no matter my speed.”

-Brian Scott | Richard Petty Motorsports #44 | Father

A SMOOTH RIDE
It’s just one of the ways asphalt delivers drivability.

The Asphalt Pavement Alliance is a partnership of the Asphalt Institute, National Asphalt Pavement Association and the State Asphalt Pavement Associations.
Mead & Hunt, a national civil engineering firm headquartered in Middleton, Wisconsin, has had one enterprise resource planning (ERP) system or another in place for around a decade and a half. But it wasn’t until about four years ago that the firm really began using the system to pull together data from the company’s more than 30 offices in a way that laid out all of the opportunities available to the firm.

“It was really clunky [before],” says Andy Knauf, vice president of IT for the firm. “Things weren’t working too well for us. You had to go into the ERP and look at the opportunities, and most people weren’t doing it because it added five or six steps. People didn’t seem engaged.”

Then Mead & Hunt made a simple change. In addition to its existing Deltek Vision ERP system, the firm implemented a product called Synthesis, “a social intranet” for architects and engineers, from the San Francisco-based company Knowledge Architecture.

Most engineering firms have some sort of enterprise resource planning software in place, but not all are using their data management systems to their full potential.
The newer system ties into the firm’s ERP software and creates a ticker of opportunities that employees can quickly and easily scan through. “As soon as you open up Internet Explorer, it comes up, and the ticker is right there,” Knauf explains. “In the last 24 hours, seven new opportunities presented themselves, and people can ‘like’ and comment on them.”

The change may seem small—and some firms may balk at the idea of investing in a new tool when they already have an ERP system in place—but Knauf says that it transformed the way Mead & Hunt does business. The newer system makes it easier to harness information about which types of projects employees throughout the company have worked on and what sorts of skills they possess, allowing managers to identify in-house talent for projects that may have been outsourced in the past.

“This was really a renaissance for our company,” Knauf says. “We’ve become more efficient. We have less downtime. Our profitability and our utilization have gone up. People say, ‘It’s such a big extra cost,’ but you can’t put a price tag on what that does for our community and our company.”

THE NEED TO LEVEL UP

Enterprise resource planning software—typically a suite of integrated applications that organizations can use to collect, store, manage and interpret data from business activities including product planning, service delivery, marketing and finance—is so pervasive in the engineering world that Knauf likens it to Microsoft Office. “Everybody pretty much has it,” he says.

Putting an ERP system in place isn’t the same as establishing systems and incorporating new tools that help an organization to maximize its value.

“There’s having the system, and then there’s leveraging the system,” says Terry D. Bennett, senior industry strategist for civil infrastructure at Autodesk. “I think that’s where you find the big disparity.”

Autodesk builds application programming interfaces (APIs) into its design and modeling programs, including Revit,
that allow them to integrate seamlessly with ERP systems. But Bennett says not all firms link their modeling and enterprise resource planning tools; therefore, they miss out on the opportunity to incorporate important data into their decision-making.

Maximizing the value of a firm’s ERP system is, essentially, a twofold challenge. First, an organization must design a system that best meets the firm’s needs. This might mean swapping out existing ERP software in favor of a program that has more value to the company, adding on supplementary tools (as Mead & Hunt did with the Synthesis intranet product), or taking a piecemeal approach and integrating a number of different solutions that work together. Second, firms must take advantage of everything these tools have to offer—in particular, making use of the data they store to increase revenues and create new efficiencies.

“It’s about the ability to take that information and leverage it for future projects,” says Bennett. “You really have to have good insight into how your firm works, and you need to understand how to mine that information.”

OPTIMIZING THE SYSTEM

Around a decade ago, managers and employees at the global engineering and architecture firm Merrick & Co. found their ERP system cumbersome. In particular, the system’s invoicing and reporting capabilities were weak, and the firm had to dedicate a team of accountants every week to the manual processing of timesheets and expense reports.

“We had a team, at one time, of five people working to get our data out,” says Shawn Holton, information technology services director for Merrick & Co. “It took a lot of labor to produce the reports that we needed.”

So, the firm adjusted its thinking—and its ERP system. Merrick & Co. adopted BST Global for its financial needs, including project accounting. The newer system eliminated inefficiencies, but IT administrators at the firm also recognized that no one ERP system could meet all of the organization’s needs. Over time, the company has been gradually replacing its payroll and customer relationship management (CRM) systems, as well, seeking out “best-of-breed” solutions and then integrating them to create a seamless user experience.

At Mead & Hunt, the firm added not only the Synthesis intranet tool but also a solution called Newforma, a project management tool that has been particularly helpful for organizing and creating visibility into project emails. “There are projects with literally 40,000 emails, and I can drill down and find anything that I need,” says Knauf.

Often, firms opt to deploy stand-alone solutions for modules that are already covered by their ERP systems. For example, a number of leading ERP vendors provide some sort of CRM functionality, but these often don’t completely meet firms’ needs, and vendors producing engineering-specific CRM systems have sprung up to fill these gaps.

Atlanta-based AEC360 is one of these vendors. Whit McIsaac, president and CEO of the company, says that CRM modules within some ERP systems simply don’t integrate well with companies’ email and mobile devices, and some other stand-alone CRM systems don’t integrate well with existing ERP systems.

“Firms end up having siloed systems,” McIsaac says. “Our perspective is, if they don’t have their CRM and ERP systems integrated, then they’re missing a huge part of the business intelligence that their ERP systems have as it relates to sales, business development and marketing.”

Engineering ERP Essentials

Enterprise resource planning (ERP) requirements vary by industry. According to ERP vendor IFS, the “must-have” features of systems for engineering firms include the following:

CRM and Estimating—For engineering, construction and infrastructure projects, customer relationship management should be centered on opportunities and subcontractor contacts, and estimating should be based on needs including subcontracting, equipment rental, and labor and materials.

Project Cost Control—Not all ERP systems’ financial modules give firms the ability to exert cost control over all activities. In engineering and construction, this ability is crucial, and an ERP system’s cost control function must allow a firm to set a budget for the overall project, facilitate periodic and real-time project reporting, track spending against the project budget and revise the project forecast.

Mobile Workforce Support—As in virtually all fields, workers in architecture and engineering are becoming more mobile, and these employees increasingly expect to be able to use mobile devices and apps to do their jobs from wherever they are. If employees are forced to batch their data and enter it when they arrive back at the office, engaging with an ERP system can become an administrative chore that isn’t seen as a top priority.

Interoperability with 3D Design and Project Management Tools—One obvious difference between the ERP requirements of engineering firms and companies in other fields is the need to connect resource planning tools to computer-aided design programs and other building design tools that store valuable company data.

Paying a Price Even When Innocent?

No matter how diligently we work on behalf of our litigation clients, our success can be constrained when clients don’t have a complete, searchable project record. With proper procedures and technology in place there is no longer an excuse to live with this risk.”

— Brent Gurney
Partner at WilmerHale

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Too often firms are unfairly held accountable for problems because the evidence absolving them cannot be located. This panel discussion features firm principals and an experienced litigator sharing insights into ways to protect your business. The discussion will emphasize best practices in managing email and other project data.

Learn more, and add to your calendar:
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MINING THE DATA
There’s no sense investing in the most sophisticated ERP system available if a firm only uses it to generate invoices and timesheets. The real value of these systems lies in the data they store.

CRMs are a prime example. When the construction market crashed nearly a decade ago, many architecture and engineering firms were forced to lay off their marketing and sales staffers, leaving those companies with no one—and no systems—to keep an institutional memory of various contacts, relationships and potential leads.

“The engineering business development world is all based on a foundation of relationships and experience,” says McIsaac. AEC360 pulls information from employees’ email and calendar tools, and allows firms to quickly search for which employees have contacts at different companies. The tool also incorporates ERP data to let managers see how successful, or not, the firm has been at winning certain types of projects and bringing them to completion. As a result, engineering firms have valuable information to decide quickly whether they should pounce on a new opportunity, and if so, which employees to present as their experts.

“If I don’t have my CRM connected to my ERP system, then all of that stuff has to be done manually,” says McIsaac.

Knauf says his firm uses weekly ERP reports to help keep projects and departments on track. “You get a snapshot every week of where you are,” he says. “That’s a pretty valuable resource, just to know where you are, and then you can make corrections. Before, you could go a month, and you might be $200,000 over budget because you wouldn’t see where that money is going.”

Holton says that some engineering companies simply don’t keep track of updates to their existing ERP systems. BST Global has released new modules that Merrick & Co. use for things like electronic invoice approval, he says, but not all users know about them.

“They’re not doing the integration piece that we’re doing where their data is synced across all of the platforms, so they’re missing out there,” he says. “They’re also not tapping into all of the features of the software they’re paying for. They’re not taking advantage of what they already own.”

Calvin Hennick is a business, technology and travel writer based in Milton, Massachusetts.
INNOVATIONS
IN VERTICAL DESIGN

BY TOM KLEMENS

MEMBER FIRMS FIND CREATIVE NEW WAYS TO PRODUCE FACILITIES THAT ARE USEFUL, EFFICIENT AND ATTRACTION

PROJECT: Liberty Fund Headquarters
Carmel, Indiana
FIRM: CE Solutions

PROJECT: Spring Street Salt Shed
New York City
FIRM: Burns Engineering, Inc.

PROJECT: Fort Carson 13th Combat Aviation Brigade Barracks
Fort Carson, Colorado
FIRM: The RMH Group

PROJECT: O’Hare Joint Use/ Consolidated Rental Car Facility, O’Hare International Airport, Chicago
FIRM: TranSystems
Since its founding as a private educational foundation in 1960, the Liberty Fund has amassed a collection of 50,000 reference works that are used principally by the organization’s employees. The new home of this specialty collection is the focal point of the campus-like design for the Liberty Fund’s new headquarters building in Carmel, Indiana.

Custom fabricated tree-like columns made of engineered glued laminated timber are used throughout the new headquarters and convey a sense of integration with the partially wooded site.

Seven of the largest “tree columns” are along the centerline of the two-story library, which is approximately 100 feet by 30 feet and clearly visible to drivers on nearby U.S. 31. Supporting the steel framework of the library’s mezzanine and roof, the tree columns create a column-free clerestory that extends the full height of the building.

Each tree column consists of eight timber legs arranged in pairs. The legs on the tallest tree columns are 5 inches thick and 18 inches deep at the base. The timbers tilt inward and taper at the top, where smaller timbers branch out to support the cantilevered steel channels of the roof framing.

Relatively simple tube steel collar connections on the center five tree columns support the mezzanine’s cantilevered structural system. Lateral forces are resolved by braced frames located adjacent to the library space. As a result, the tree-columns are not required to act as lateral load resisting elements.

“Probably the hardest thing was making the connection work at the top of the columns,” says John “JD” Taylor, vice president and principal at CE Solutions, which provided structural engineering for the project. “We found that as we got toward the top, rather than cut every piece that went up there, we could maintain the integrity of one of the pieces in each pair while the other pieces got carved to almost nothing.”

By making a 3D model including all the timbers that come together at the top of the column trees, engineers were able to facilitate fabrication of the required connections. At the heart of the connection is a vertical steel pipe, attached at the top to a cap plate that rests atop the tree column. Multiple plates welded to that pipe at various angles provide the bolted connections for the numerous timbers to be attached at that point.
Unique Design Wins Neighborhood Support for Utility Structure

PROJECT: SPRING STREET SALT SHED
NEW YORK CITY

FIRM: BURNS ENGINEERING, INC.
PHILADELPHIA

Even with the promise of better snow removal, no one wants to see a new salt storage shed built in the neighborhood. That’s especially true for New York City’s trendy Tribeca neighborhood in lower Manhattan, where the structure originally planned sparked protests from residents. But Burns Engineering, the structural engineer, helped create a unique, iconic structure resembling a salt crystal that has been embraced as a community landmark and honored with multiple awards.

The 6,300-square-foot, irregularly shaped structure is located along the Hudson River on a triangular half-acre site at Canal and West streets, in proximity to the Holland Tunnel. Designed to house 5,000 tons of salt, its exterior wall surfaces feature crystalline, faceted planes of architectural concrete that taper toward the bottom and rise to a height of nearly 70 feet.

The design team, led by Dattner Architects, defined the multifaceted exterior profile of the cast-in-place concrete walls using a 3D coordinate system in lieu of standard linear dimensions.

“One thing that helped was that all the interior faces of the walls are vertical and plumb, which gave them a basis for setting their formwork.”

To achieve the faceted shape of the exterior surfaces, Oliveira used custom-manufactured, high-density polystyrene sections, up to 6 feet thick, each numbered and placed against the shoring frame system. All reinforcing steel was field bent to follow the intricate alignment of the faceted formwork.

The difference between the faceted exterior wall profile and the plumb interior face resulted in the wall thickness varying from 3 feet at the base to 1 foot at the parapet. Due to color requirements of the exposed architectural concrete, the concrete mix contained a high percentage of pale gray colored cement, which intensified the mass concrete heat of hydration and cracking potential. Extensive crack-control measures included limiting the size of concrete placements, extending curing periods and installing continuous U-shaped stainless steel crack control devices at control joints in vertical architectural reveals, creating an 8-foot by 8-foot grid.

PHOTO (RIGHT) COURTESY OF FIELD CONDITION; (BOTTOM) ANTHONY LOCICERO
PHOTOS COURTESY OF SHIELS Sexton
Barracks Complex Raises the Energy Efficiency Bar for Military Housing

PROJECT: FORT CARSON 13TH COMBAT AVIATION BRIGADE BARRACKS
FORT CARSON, COLORADO

FIRM: THE RMH GROUP, INC. LAKEWOOD, COLORADO

Located at the base of the Rocky Mountains about an hour’s drive south of Pikes Peak and Colorado Springs, Fort Carson is one of two U.S. Army bases working to attain “net zero” energy, water, and waste by 2020. As one key step in that direction, The RMH Group, Inc., in 2015 helped lead completion of a $94.9 million net zero energy barracks complex using a combination of innovative integrated mechanical systems and highly insulated, tight construction. That complex is now home to the 13th Combat Aviation Brigade and has set new standards for world-class energy efficiency, functionality and comfort in military personnel housing.

“The RFP set out guidelines to really press the envelope in energy efficiency,” says William Green, president of The RMH Group, which provided design and engineering for the complex’s mechanical systems. “The innovation here really started at the building envelope by reducing loads, getting it as tight as possible, and having features such as high-mass walls and very tight construction. Then we put in a very efficient mechanical system that took full advantage of that tight envelope.”

The highly aggressive energy performance requirements led the team to select one of the most innovative mechanical systems ever employed in a military barracks. The low-maintenance system uses radiant floor heating and cooling combined with chilled beams to produce an exceptionally comfortable living space. Heat recovery chillers used to cool the buildings redirect heat to underground thermal storage tanks providing domestic hot water preheating and building heat in the winter, eliminating the need for a cooling tower and the associated water use. Solar hot water panels provide 30 percent of the domestic hot water heating and gravity thin-film exchangers capture heat from shower drains to provide shower water preheat.

“That is really one of the more significant energy saving features,” Green says. “It’s amazing how much you can raise the temperature of the cold water going to the shower by wrapping the drain pipe with the cold water line. Depending on how cold the water is going in, you can pick up 50 percent of the waste heat going down the drain and reduce your energy consumption for hot water.”
The Joint Use/Consolidated Rental Car Facility currently being built by the Chicago Department of Aviation on the northeastern corner of O'Hare International Airport will change the way millions of people use the airport. Following a national trend toward such consolidated facilities, the O'Hare project’s multiple components include three notable innovations.

The most visible is in the project scope. “This will relocate any number of activities from the central terminal area to this facility,” says Michael Lev, vice president and senior project manager with TranSystems, which developed the design criteria, facilities programming concept design and construction documents for the project. “It’s not just the rental cars but also regional buses, hotel shuttles and so on. Redirecting those vehicles will eliminate a large amount of traffic on the terminal roadway.”

To provide access to the new facility, the project includes an extension of O’Hare’s automated train system (ATS) and a new station. That cast-in-place concrete structure used 8,000 psi self-consolidating white cement concrete to achieve the slender columns while providing the strength and rigidity necessary to support the ATS trains.

A five-story garage adjacent to the ATS terminal will serve 11 rental car companies on its first three floors and provide 2,624 remote public parking spaces on the two upper floors. Although the garage originally was designed with moment frames to maximize use of the floor plates by the rental car companies, the precast engineer revised the lateral support system to use extra-stiff full-height columns instead. In addition to further enhancing floor plate flexibility, this shortened erection time avoided the difficulties inherent in transporting and erecting moment frames.

Another innovative portion of the project is the Quick Turn Around facility, where the rental car companies can service cars after their return before putting them back into service. Each of the facility’s three floors has five car wash bays, 24 fueling positions and eight maintenance bays.

TranSystems and the Chicago Department of Aviation worked closely with the Chicago Building Department and the Chicago Fire Department to develop a life safety plan for the unique multistory fueling. One key component to this system is an aqueous film-forming foam fire suppression system with storage tanks to collect discharged foam and water used to fight a fire.

Tom Klemens is a freelance writer near Chicago and is a registered Professional Engineer in Illinois.
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Jon Carlson
CEO, Braun Intertec Corporation
Chartwell is a national leader in advising middle market companies in all aspects of financial advisory.

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Principal  
**ESOP as an Ownership Transition Option**  
Monday, April 24  
11:00am-12:15pm

Chris Staloch  
Managing Director  
**CFO Roundtable**  
Monday, April 24  
4:00pm-5:15pm

Paul Halverson  
Managing Director  
**Sustainable Ownership Models**  
Tuesday, April 25  
10:30am-11:45am

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$331 in donations more than 25 years ago kick-started American Structurepoint’s charitable giving program that continues to grow today

STRUCTURING DREAMS

BY CALVIN HENNICK
The first time Indianapolis-based engineering and architecture firm American Structurepoint employees took up a collection during the holidays was in 1989, 28 years ago, when they collected $331 to buy food, clothing and gifts for an elderly woman in need.

After the firm’s chief executive heard about their effort, he matched the donations on the spot, and the employees were able to make the Christmas season special for someone else.

Little did they know that first act of charity would snowball into a year-round employee giving program that raises around $35,000 each year—and that’s before the company’s matching donation, which pushes the fundraising total to $70,000.

“It just grew every year,” says Michele Collins, an executive assistant at the firm, who organized that first giving drive.

The chief executive matched the donations again the next year, and gradually, more and more people began to participate in the giving program. Now, around 30 percent of company employees contribute to the fund via payroll deductions. Collins hopes to increase that number to 50 percent in honor of the firm’s golden anniversary.

The fund, which employees still manage, now donates to a wide range of causes all year, including international relief efforts, educational programs and aid for ailing staff members and their families.

“It always feels good to help somebody,” Collins says, explaining the popularity of the program.

“There’s just nothing like it.”

In addition to being generous with their money, employees have also been generous with their time, as the interest in giving back to communities through volunteer efforts has blossomed.

“It’s in our core values, giving back to the communities in which we work,” says Ben Braun, vice president of human resources.

DAY OF SERVICE
For the last two years, several of American Structurepoint’s offices also have participated in an annual Day of Service, designed to get employees working together on a project that makes a difference in the community. Employees from the firm’s Indianapolis headquarters volunteer in two-hour shifts at Gleaners Food Bank of Indiana, sorting donations to separate out unusable items and preparing weekend food bags for needy schoolchildren.

Employees carpool to the food bank, alternating between two shifts and often engage in a friendly competition over which shift can process the most food. The event draws about 50 volunteers from the company per year, and last year, employees sorted more than 18,000 pounds of donations. The firm also makes a financial donation to the food bank on the Day of Service.

“It’s one of the more concentrated, more visible things that we do,” says Margaret Kantz, a contracts manager who coordinates the Indianapolis office’s Day of Service. “You can really accomplish something as a group.”

The company’s Columbus, Ohio, office also helps out at a local food bank for its Day of Service project. The smaller Terre Haute office has completed work on a local bike park dedicated to veterans killed in combat.

“Residents from the village of Sibou in Swaziland refresh themselves with water from a well funded by American Structurepoint.”

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For the last two years, several of American Structurepoint’s offices also have participated in an annual Day of Service, designed to get employees working together on a project that makes a difference in the community. Employees from the firm’s Indianapolis headquarters volunteer in two-hour shifts at Gleaners Food Bank of Indiana, sorting donations to separate out unusable items and preparing weekend food bags for needy schoolchildren.

Employees carpool to the food bank, alternating between two shifts and often engage in a friendly competition over which shift can process the most food. The event draws about 50 volunteers from the company per year, and last year, employees sorted more than 18,000 pounds of donations. The firm also makes a financial donation to the food bank on the Day of Service.

“It’s one of the more concentrated, more visible things that we do,” says Margaret Kantz, a contracts manager who coordinates the Indianapolis office’s Day of Service. “You can really accomplish something as a group.”

The company’s Columbus, Ohio, office also helps out at a local food bank for its Day of Service project. The smaller Terre Haute office has completed work on a local bike park dedicated to veterans killed in combat.

“It’s in our core values, giving back to the communities in which we work.”

BEN BRAUN
AMERICAN STRUCTUREPOINT

Since 2011, American Structurepoint and its employees have given $73,000 to The Thirst Project
Kantz recommends that all companies find a way to get their employees working together on a service project because it helps to strengthen the communities where a firm operates. It can also build camaraderie among colleagues who work in different areas of the company and may not regularly interact with one another, she says. Plus it allows volunteers to get out of the office and get a little more hands-on.

“Nobody needs special talents or training. It gets a lot of employee buy-in, so it’s an easy call,” says Kantz.

THE THIRST PROJECT
In recent years, the company’s charitable giving has extended to the global community.

Since 2011, American Structurepoint and its employees have given $73,000 to The Thirst Project. The nonprofit, started by Indianapolis native Seth Maxwell, builds wells in impoverished African countries, with the aim of bringing safe and clean water to communities. According to the organization, the introduction of clean water can cause an 88 percent drop in water-related illnesses, along with a 90 percent reduction in child mortality.

The firm’s partnership with The Thirst Project began when it donated $10,000 for the construction of a well in Swaziland, a small, landlocked country near the southern tip of Africa.

The Thirst Project has raised $8 million globally and has completed nearly 2,000 water well projects in 13 different countries.

DREAM ALIVE
The company’s charitable efforts also focus on the future of the engineering and architecture industry.

American Structurepoint works with students from DREAM Alive, an Indianapolis organization that provides mentoring, character development and learning opportunities to students in seventh to 12th grade with the aim of helping them become civic-minded leaders. In half-day sessions, the kids learn about the engineering world and participate in hands-on projects.

“We try to get them excited about not only pursuing a job in the architecture and engineering industry but about pursuing college in general,” says Brandon Hoopingarner, an American Structurepoint architectural design director active in the firm’s partnership with DREAM Alive.

“Our volunteers are passionate about letting DREAM Alive scholars know that there’s opportunity out there for them, and we’re just one small piece of that.”

“DREAM Alive scholars know that there’s opportunity out there for them, and we’re just one small piece of that.”

BRANDON HOOPINGARNER
AMERICAN STRUCTUREPOINT

During one of the visits, American Structurepoint volunteers coached students as they designed and built bus stop shelters to certain specifications out of LEGO. At another visit, students competed in the Marshmallow Challenge, in which teams are given materials such as tape, string and sticks of spaghetti to build a free-standing structure that will support a single marshmallow.

“It’s an exercise in communication and teamwork,” says Brandon Farley, a senior project manager at the firm. “And even though they don’t know it at the time, it’s an exercise in iteration and failure. We talk about how failure isn’t necessarily bad, how it’s something you learn from. They get a big kick out of it.”

Hoopingarner says he sees the program as a way to talk with students about the ways the architecture and engineering fields are beneficial to society. “A lot of young people feel disconnected from their communities and maybe think there’s not a promising future out there for them,” he says. “This is a good opportunity to get kids thinking about being a positive influence.”

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Brandon Bart, a project planner in Indianapolis, is one of a number of American Structurepoint employees who participate in the Million Meal Marathon, an annual event held at Lucas Oil Stadium, where participants work to pack as many nutritious meals as possible during a single day.

Donning hairnets, volunteers work in teams to combine rice, soy protein, dried vegetables and vitamins and minerals into meal packs that get distributed to families around Indiana.

“There’s one person that handles the bags, there’s one person that vacuum seals them up and packs them. There’s one person that does the scoop of the protein, vitamins and rice,” says Bart, who has put in a two-hour shift as a rice scooper each of the past two years. “It’s an assembly line, and they expect you to be very, very quick.”

The two hours fly by pretty fast, he says, and event officials try to make it as energetic as possible when they pick up the box they do a cheer, or ring a bell. “There’s definitely a good, positive energy there,” Bart says. “Everybody who’s there wants to be there.”

Each month, American Structurepoint allows employees to bill half of their volunteering time to the company, up to two paid hours.

“You’re still partly on the clock, but you’re getting to participate in something a little more fun,” Bart says.

“It feels like you’re part of something bigger,” Bart adds.

Calvin Hennick is a business, technology and travel writer based in Milton, Massachusetts.

**Focus on STEM**

Last March, American Structurepoint donated $250,000 to the Indianapolis Public Schools (IPS)—enough to allow any district school that opts-in to participate in Project Lead the Way, an organization that focuses on science, technology, engineering and math (STEM) education.

Before the grant, only five schools in the district were participating in Project Lead the Way (PLTW), which gives K-12 students access to hands-on projects that help them gain skills in problem solving, critical thinking and communication.

“This remarkable partnership with American Structurepoint and PLTW will allow us to expand our STEM offerings to benefit students across the district and inspire the next generation of engineers, scientists and leaders in the field of technology,” IPS Superintendent Lewis Ferebee said in a statement when the grant was announced.

The large, one-time donation came during the year of American Structurepoint’s 50th anniversary and was in addition to the firm’s regular giving. “We wanted to give back in a bigger way this year,” says Ben Braun, vice president of corporate affairs. “We were trying to look for something that was big for our community.”
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Has Industry M&A Reached its Peak?

By Mick Morrissey

U.S. design firm deals fell 15 percent last year to levels not seen since 2013. This is the first meaningful decline in the pace of industry consolidation since the Great Recession. It puts decision makers in uncharted territory because M&A typically rises or falls in synch with the economy. This is the first time in over 20 years the industry has seen declining consolidation in a growing economy.

The slowdown mirrors that seen in the larger economy with FactSet reporting an overall decrease in M&A activity of almost 10 percent last year. Theories for the slowdown range from uncertainty in a presidential election year (which was not the case in the prior two presidential election years) to the idea that all the good firms have been sold. Regardless, it would appear the industry is now a buyer’s market and sellers may start to see downward pressure on valuations.

Have we reached “peak M&A”? It’s too early to tell. Morrissey Goodale continues to see strong demand on the part of buyers, with many first time buyers entering the market. However, buyers are, for the most part, much more strategic and selective than they were in prior years. Similarly, we see no slowdown in sellers looking to find buyers, largely due to continuing mega industry trends of ownership and leadership transition breakdowns and a hyper competitive market. However, we do see a fault line in the seller universe. Those sellers that have some combination of a unique market offering, hot geography or strong performance and backlog tend to find it easier to find a buyer. Those sellers that have none of these attributes are more frequently getting passed over.

A deeper dive into the 2016 M&A stats yields the following nuggets for decision-makers:

- Less than 10 percent of all deals in the U.S. last year involved a publicly traded buyer. This is down from 17 percent the prior year. This undoubtedly correlates with less M&A activity and downward pressure on pricing last year.
- In 2016, inter-state deal activity (a firm headquartered in one state acquiring a firm headquartered in another) reached 61.4 percent, its highest level prior to the Great Recession. Last year the majority of buyers used acquisitions as a tool to grow their geographic reach.
- Texas confirmed its status as the hottest state for acquisitions with 24 deals during the year. Deal activity in the Lone Star state was driven by a combination of its business-friendly environment, its robust and diverse economy and outlook for demographic growth. Beyond Texas, the West saw considerable consolidation—with a combined total of 30 deals in California and Washington.
- Global deals also declined during 2016, falling to levels not seen since 2012. For the first time since 2012, the number of U.S. firms acquiring internationally outpaced the activity of overseas acquireurs entering the U.S. market.
- The median acquiring firm last year generated $65 million in revenue, up from $59 million in 2015. The median selling firm last year was $4 million, up from $3 million the prior year. In other words, M&A activity involved larger firms in 2016. Smaller firms may find that a firm sale is no longer viable for them.

Recent ACEC Deal-Makers

January 2017

ACEC member KCI Technologies (Sparks, Md.) acquired ACEC member RPM Transportation Consultants (Nashville, Tenn.), a firm specializing in traffic engineering, transportation planning, roundabout and bikeway design and traffic data collection. The addition of RPM’s 21 employees and retention of RPM President Bob Murphy strengthens KCI’s position in the transportation market in the southeast U.S.

December 2016

Hurt and Proffitt (Lynchburg, Va.) acquired ACEC member Anderson & Associates (Blacksburg, Va.), a civil engineering and surveying firm. With the addition of A&A’s services and employees, H&P will now offer full-service capabilities.

ACEC member Thornton Tomasetti (New York, N.Y.) agreed to acquire Swallow Acoustic Consultants Limited (Mississauga, Canada), a specialist in acoustics, noise, and vibration control engineering.

ACEC member WSP | Parsons Brinckerhoff (Montreal, Canada) acquired structural design and technical consulting firm Hoyer Finseth (Oslo, Norway). Hoyer Finseth will become part of the WSP brand, but will continue under its current management. The acquisition strengthens WSP’s structural design expertise and brings the firm’s staff count in Nordic countries to 4,400.

ACEC member Northern Technologies (Fargo, N.D.) acquired American Technical Services (Sioux Falls, S.D.). The acquisition adds similar services to Northern’s existing offerings, but expands the firm’s footprint in the Dakotas as well as several surrounding states.
ACEC member Burns & McDonnell (Kansas City, Mo.) acquired AZCO (Appleton, Wis.). The addition of the industrial contractor bolster’s Burns & McDonnell’s construction sector and adds significant fabrication capabilities to the firm’s service offerings.

ACEC member Terracon (Olathe, Kan.) acquired ACEC member CHJ Consultants (Colton, Calif.), a geotechnical and materials testing firm. Terracon has been aggressively pursuing growth in geotechnical services in coastal regions of the U.S. This acquisition follows Terracon’s November 2016 purchase of Virginia-based firm Geotechnical Consulting & Testing.

ACEC member NV5 (Hollywood, Fla.), acquired infrastructure engineering firm CivilSource (Irvine, Calif.). CivilSource’s large public client base offers NV5 the opportunity to engage municipalities as federal and state infrastructure support continues to build.

In a separate acquisition, NV5 acquired ACEC member The Hanna Group (Rancho Cordova, Calif.), a bridge and transportation program management firm with approximately $11 million in annual revenue. The acquisition adds significant bridge expertise to NV5’s northern California operations.

NOVEMBER 2016
ACEC member Bolton & Menk (Mankato, Minn.), announced that Survey Services, Inc. (Mankato, Minn.) has joined the firm. The local acquisition brings additional land surveying capabilities and clients under the Bolton & Menk umbrella.

ACEC member Barge, Waggoner, Sumner, and Cannon (Nashville, Tenn.) acquired jB+a (Atlanta, Ga.), a planning and landscape architecture design firm. The deal expands BWSC’s footprint in the southeast U.S., as jB+a will continue to operate out of its offices in Atlanta and Savannah.

ACEC member Woodard & Curran (Portland, Maine) acquired RMC Water and Environment (Walnut Creek, Calif.), an environmental engineering firm focused on water resource use and protection. Woodard adds its fourth office in Northern California with the acquisition.

ACEC member MSA Professional Services (Baraboo, Wis.) acquired the staff members of the former Ourston Roundabout Engineering (Madison, Wis.). The new employees will provide intersection analysis and roundabout design expertise.

Mick Morrissey is managing principal of Morrissey Goodale, LLC, a strategy, M&A and human capital solutions firm serving the architecture, engineering and construction industry. He can be reached at: mmorrissey@morrisseygoodale.com.

To view the most up-to-date and “live” versions of the M&A heat maps, and to see who are the buyers and sellers in each state, go to www.morrisseygoodale.com.

Watch the M&A Takeaway video that accompanies this article, presented by Mick Morrissey, at www.morrisseygoodale.com/ACECMergers/MarchApril2017.
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Robert J. Slimp has been named chairman, president and CEO of HNTB Holdings Ltd., the parent company of Kansas City, Missouri-based HNTB Corp. Slimp will continue to serve as CEO of HNTB, a post he has held since 2013. He is based in Atlanta.

Harrisburg, Pennsylvania-based Gannett Fleming appointed Robert M. Scaer chairman and CEO, and Paul D. Nowicki, president and COO, succeeding Scaer. Nowicki previously served as Southeast region director. Luis Casado joined the firm as senior vice president and Southeast region director, where he will manage eight offices in Florida, Louisiana and Tennessee.

Brian A. Lutes has been named president and CEO of Pittsburgh-based Michael Baker International, succeeding Kurt C. Bergman, who had been CEO since 2013. Dale R. Spaulding was appointed executive vice president and COO. Penny Mercadante was named executive vice president and chief human resources officer, and Darcie Zeliesko vice president of talent management.

Charles Russo was appointed CEO of Waltham, Massachusetts-based Simpson Gumpertz & Heger. Glenn Bell, CEO since 1995, will remain chairman and senior principal.

Bismarck, North Dakota-based Kadrmas, Lee & Jackson, Inc. (KLJ), appointed Dean Anagnost CEO, succeeding former CEO Niles Hushka, who retired at the end of 2016 after 35 years with the firm. Anagnost, who joined KLJ in 1991, was appointed CFO in 2007. Barry Schuchard, KLJ’s current chief production officer, will also serve as president of the board.

Lincoln, Nebraska-based Olsson Associates appointed President Brad Strittmatter the firm’s new CEO. Ryan Beckman, senior vice president of sales and new business, was named president.

Pietro “Pete” Giovenco was named president of Rochester, New York-based Bergmann Associates, DPC. Giovenco previously served as the firm’s COO.

Christopher M. Solomon, president of Austin, Texas-based Surveying And Mapping, LLC, has been appointed to oversee daily operations of the company, following the retirement of Samir “Sam” G. Hanna, founder and CEO. Hanna will remain chairman and serve as an advisor. Solomon, who will retain the title of president, was appointed to that role in December 2015.

Williamsport, Pennsylvania-based Larson Design Group has hired David Martin as COO. Martin most recently served as senior vice president for Michael Baker, Inc.

Louis Saulino has joined Mineola, New York-based Sidney B. Bowne & Son, LLP as COO. He formerly served as COO and executive vice president at Hirani Engineering and Land Surveying.

Bloomfield Hills, Michigan-based Hubbell, Roth & Clark, Inc., announced the following appointments: Daniel W. Mitchell was named
president. Nancy Faught was named executive vice president and Charles E. Hart was named vice president. These appointments follow the retirement of former President George E. Hubbell and former Executive Vice President Thomas E. Biehl.

Tampa, Florida-based Walker Parking Consultants named Casey Wagner executive vice president and COO. Wagner formerly served as a senior vice president in the Houston office. In addition, Jim (Hakam) Dib was promoted to vice president of the United Arab Emirates offices and will be based in Dubai. Rick Klein was promoted to vice president of the Michigan offices and will be based in Ann Arbor.

Markus Weidner has rejoined Philadelphia-based Pennoni as the firm’s first chief innovation officer. Weidner most recently served as director of technology at NELSON. He previously served as associate vice president and IT director at Pennoni several years ago. He will be based in the company’s headquarters.

Stephanie Kelly was appointed chief human resources officer at New York City-based Thornton Tomasetti, where she will be based.

Los Angeles-based AECOM named Andy Sallis president of global oil and gas for the firm’s construction services division. Sallis formerly served at AMEC Foster Wheeler and will be based in Houston. Robert Leonetti has been promoted to president and general manager of the firm’s civil construction & mining business unit. He formerly served as senior vice president of alternative delivery services. Leonetti will be based in New York, N.Y. and Denver, Colo.

WSP | Parsons Brinckerhoff appointed Kurt W. Krauss chief projects officer for the firm’s U.S. Advisory Services group. He is based in Washington, D.C. Christopher Peters was named a senior vice president and transportation and infrastructure business manager of the West region and will be based in the Orange, Calif., office. Emily Freund was appointed a vice president and will serve as regional director of design-build for the firm’s West region. She is based in the Los Angeles office. Tanya Adams was promoted to vice president and is based in the Chicago office. Vice President Edwin E. Tatem has also been named construction services manager, transportation and infrastructure for the Central region and is based in the Detroit office.

John “JD” Taylor has been promoted to vice president and principal of Carmel, Indiana-based CE Solutions.

Edward R. Kennedy has joined Seattle-based Shannon & Wilson as a vice president and senior project manager for tunnels and systems.

Alan Thomas has joined Pasadena, California-based Parsons as senior vice president and Eastern regional manager of its Industrial Division. Richard Reis joined the company as vice president and Northwest regional manager of its Infrastructure Division. Thomas is based in Philadelphia, and Reis is based in Seattle.
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Maintenance Design Group, LLC (MDG)
Pasadena
Verde Design, Inc.
Santa Clara
Western Allied Mechanical, Inc.
Menlo Park

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Basalt
Anderson Consulting Engineers, Inc.
Fort Collins
Inter-Mountain Engineering
Avon
JDS-Hydro Consultants, Inc.
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Several documents are now revamped with new technology to make them easier to use in the field, and several more have been revised to reflect current best practice standards. The following publications were revised in 2016: Marketing Your Land Development Firm with Greater Success; Project Management Tools: Go/No-Go Process, Project Start-Up, Cost to Complete, Contract Negotiations; Quality Assurance/Quality Control Tools and Project Schedule Review.

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